COLDHARBOUR Marine & Offshore Fluid Handling Solutions

1015

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# Water Quality Analysis

The samples shown below have been examined for either Legionella, Pseudomonas, Total Viable Counts, Coliforms and E. coli in accordance with Environmental Scientifics Group documented in-house procedures SCI/ENV206, 208, 209, 210 and 212, based on the EA publications 'The Microbiology of Drinking Water (Parts 1 to 9) – Methods for the Examination of Waters and Associated Materials' and BS6068-4.12:1998 Detection and Enumeration of Legionella. Where sampling is undertaken by Environmental Scientifics Group, this is done in accordance with documented in-house procedure SCI/ENV 203.

| ESG Reference | Replicate | Date Sampled | Date Received | Date Tested | Sample Description | *TVC @ 37°C cfu/ml | *Confirmed *E. coli* cfu/ml | Comments |
|---|---|---|---|---|---|---|---|---|
| EC 08/09A | - | 08/09/2011 | 08/09/2011 | 08/09/2011 | *E. coli* suspension in nutrient broth | $1.8 \times 10^8$ | | |
| SDE2813/29 | 1 | 08/09/2011 | 09/09/2011 | 09/09/2011 | Sample # 1 control 08.57 | | $1.2 \times 10^5$ | |
| | 2 | | | | | | $1.1 \times 10^5$ | |
| | 3 | | | | | | $1.0 \times 10^5$ | |
| | Average | | | | | | **$1.1 \times 10^5$** | Rig 1 |
| SDE2813/30 | 1 | 08/09/2011 | 09/09/2011 | 09/09/2011 | Sample # 11 13.57 | | 134 | |
| | 2 | | | | | | 118 | |
| | 3 | | | | | | 106 | |
| | Average | | | | | | **119** | Rig 1 |

The Water Supply (Water Quality) Regulations 2000 require Colony Counts (TVC) in mains public supply to show "No significant increase over that normally observed". Environmental Scientifics Group recommended Limits for Confirmed coliforms = 0/100ml, Confirmed E. coli = 0/100ml. Legionella = 0 or Not Detected / 1000ml. TVC = Total Viable Count. Figures over 300 cfu are approximate unless denoted '+'. † This analysis was sub-contracted to a third party laboratory and tested using a UKAS accredited method. The results contained in this report are derived solely from the sample received. UKAS accredited tests are denoted by an asterisk (*). Legionella tests on samples volumes other than 1000ml are not UKAS accredited. This test report shall not be reproduced except in full, without written approval of Environmental Scientifics Group. Opinions or interpretations expressed herein are outside the scope of UKAS accreditation. The samples reported on herein were not sampled or identified by Environmental Scientifics Group unless otherwise indicated. Taking of samples from site is not included within the scope of accreditation of this laboratory.

Analyst(s):

Authorised By:

Claire Jackson, Field Team Leader

ENV18719

12/09/2011

**Date:** 08/09/2011 **Test rig:** 1 **Culture:** A **Test:** 25mm Choke R.I. + Wh. 4

| Time | Activity | Sample | DO | pH | T | Unreg. | Regd. | Airflow | Water | Water | Whistle | Bubbler | Condy. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| – | – | # | mg/l | | °C | Air bar | Air bar | $Nm^3/hr$ | $m^3/hr$ | m/s | kHz | L/min | µS/cm |
| 08:32 | Bacteria to IBC #3; pump to tank | | | | | | | | | | | | |
| 08:50 | Tank full, pump off | | | | | | | | | | | | |
| 08:57 | Sample taken. | 1 | 7.40 | 7.83 | 16.8 | 7.6 | 2.7 | 9.5 | - | - | 20.84 | 0.50 | 469 |
| 09:57 | Sample taken. | 3 | 8.60 | 8.40 | 16.7 | 7.6 | 2.7 | 9.5 | - | - | 20.76 | 0.50 | 400 |
| 10:57 | Sample taken | 5 | 8.50 | 8.44 | 16.6 | 7.5 | 2.7 | 9.6 | - | - | 20.76 | 0.50 | 399 |
| 11:57 | Sample taken. | 7 | 8.50 | 8.44 | 16.5 | 7.6 | 2.7 | 9.4 | 8.71 | 1.13 | 20.76 | 0.50 | 401 |
| 12:57 | Sample taken. | 9 | 8.80 | 8.44 | 16.4 | 7.6 | 2.7 | 9.4 | 8.70 | 1.11 | 20.84 | 0.50 | 400 |
| 13:57 | Sample taken. | 11 | 8.50 | 8.44 | 16.4 | 7.5 | 2.7 | 9.2 | 8.68 | 1.11 | 20.84 | 0.50 | - |
| 14:00 | Pump to IBC #3 ; Treatment off | | | | | | | | | | | | |
| 14:18 | Chlorinate IBC #3; pump to tank | | | | | | | | | | | | |
| 14:31 | Tank full GLD on | | | | | | | | | | | | |
| 15:09 | GLD off; pump to IBC #3 | | | | | | | | | | | | |
| 15:30 | Dechlor IBC# 3; pump IBC #2 to tank | | | | | | | | | | | | |
| 15:50 | GLD on | | | | | | | | | | | | |
| 16:10 | empty to drain | | | | | | | | | | | | |
| 16:25 | Fill to DO | | | | | | | | | | | | |
| 16:40 | Finish | | | | | | | | | | | | |

Note: Chlorine Test Pass NW